

I claim:

1. A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:  
a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a length between said distal and proximal ends;  
an upper support member extending between said distal and proximal ends;  
a lower support member extending between said distal and proximal ends, said lower support member being opposite said upper support member in a vertical plane parallel to the mid-longitudinal axis; and  
a connector at said proximal end of said clip, said connector joining said upper and lower support members, at least one of said upper and lower support members having a bend section greater than 180 degrees proximate said distal end.
2. The clip of claim 1, wherein said bend section is greater than 270 degrees.
3. The clip of claim 1, wherein said bend section includes two opposed portions that form an arc of a circle.
4. The clip of claim 1, wherein said upper and lower support members each have a bend section greater than 180 degrees proximate said distal end.
5. The clip of claim 4, wherein said clip is formed of a single piece of wire and has a first free end terminating at said connector and a second free end terminating at one of said bend sections.
6. The clip of claim 4, wherein each of said bend sections have a clamping surface adapted to clamp the fluid carrying structure therebetween, said clamping surfaces having a maximum separation distance therebetween of 0.75 mm in an open and undeployed position.
7. The clip of claim 1, wherein said connector is adapted to bias said upper and lower support members toward one another into a closed position.
8. The clip of claim 1, wherein said connector includes a coil spring.
9. The clip of claim 1, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support

members toward one another into a closed position, the force being greater than that needed to move said upper and lower support members into contact with one another.

10. The clip of claim 1, wherein said connector includes a pre-load force between said upper and lower support members of at least 100 grams of force.
11. The clip of claim 1, wherein said clip has a maximum dimension of 5 mm transverse to the mid-longitudinal axis.
12. The clip of claim 1, in combination with a clip applier for applying said clip to the fluid carrying structure.
13. The clip of claim 12, wherein said clip applier includes a magazine adapted to hold a plurality of clips.
14. A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:
  - a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a length between said distal and proximal ends;
  - an upper support member extending between said distal and proximal ends;
  - a lower support member extending between said distal and proximal ends, said lower support member being opposite said upper support member in a vertical plane parallel to the mid-longitudinal axis; and
  - a connector at said proximal end of said clip, said connector joining said upper and lower support members, at least one of said upper and lower support members forming a loop proximate said distal end, said loop having a center point and extending more than 180 degrees around the center point.
15. The clip of claim 14, wherein said loop extends more than 270 degrees around the center point.
16. The clip of claim 14, wherein said loop includes two opposed portions that form an arc of a circle.
17. The clip of claim 14, wherein said upper and lower support members each form a loop proximate said distal end having a center point and extending more than 180 degrees around the center point.

18. The clip of claim 17, wherein said clip is formed of a single piece of wire and has a first free end terminating at said connector and a second free end terminating at one of said loops.
19. The clip of claim 17, wherein each of said loops have a clamping surface adapted to clamp the fluid carrying structure therebetween, said clamping surfaces having a maximum separation distance therebetween of 0.75 mm in an open and undeployed position.
20. The clip of claim 14, wherein said connector is adapted to bias said upper and lower support members toward one another into a closed position.
21. The clip of claim 14, wherein said connector includes a coil spring.
22. The clip of claim 14, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support members toward one another into a closed position, the force being greater than that needed to move said upper and lower support members into contact with one another.
23. The clip of claim 14, wherein said connector includes a pre-load force between said upper and lower support members of at least 100 grams of force.
24. The clip of claim 14, wherein said clip has a maximum dimension of 5 mm transverse to the mid-longitudinal axis.
25. The clip of claim 14, in combination with a clip applier for applying said clip to the fluid carrying structure.
26. The clip of claim 25, wherein said clip applier includes a magazine adapted to hold a plurality of clips.
27. A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:
  - a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a length between said distal and proximal ends;
  - an upper support member extending between said distal and proximal ends;
  - a lower support member extending between said distal and proximal ends, said lower support member being opposite said upper support member in a vertical plane parallel to the mid-longitudinal axis; and

a connector at said proximal end of said clip, said connector joining said upper and lower support members, at least one of said upper and lower support members forming a loop proximate said distal end, said loop having an interior surface with a portion of said interior surface facing at least in part toward said distal end.

28. The clip of claim 27, wherein said loop includes two opposed portions that form an arc of a circle.
29. The clip of claim 27, wherein said upper and lower support members each form a loop proximate said distal end having an interior surface with a portion of said interior surface facing at least in part toward said distal end.
30. The clip of claim 29, wherein said clip is formed of a single piece of wire and has a first free end terminating at said connector and a second free end terminating at one of said loops.
31. The clip of claim 29, wherein each of said loops have a clamping surface adapted to clamp the fluid carrying structure therebetween, said clamping surfaces having a maximum separation distance therebetween of 0.75 mm in an open and undeployed position.
32. The clip of claim 27, wherein said connector is adapted to bias said upper and lower support members toward one another into a closed position.
33. The clip of claim 27, wherein said connector includes a coil spring.
34. The clip of claim 27, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support members toward one another into a closed position, the force being greater than that needed to move said upper and lower support members into contact with one another.
35. The clip of claim 27, wherein said connector includes a pre-load force between said upper and lower support members of at least 100 grams of force.
36. The clip of claim 27, wherein said clip has a maximum dimension of 5 mm transverse to the mid-longitudinal axis.
37. The clip of claim 27, in combination with a clip applier for applying said clip to the fluid carrying structure.

38. The clip of claim 37, wherein said clip applier includes a magazine adapted to hold a plurality of clips.
39. A surgical ligation clip for ligating a fluid carrying structure, said clip comprising:  
a mid-longitudinal axis, a distal end, a proximal end opposite said distal end, and a length between said distal and proximal ends;  
an upper support member extending between said distal and proximal ends;  
a lower support member extending between said distal and proximal ends, said lower support member being opposite said upper support member in a vertical plane parallel to the mid-longitudinal axis; and  
a connector at said proximal end of said clip, said connector joining said upper and lower support members, each of said upper and lower support members including an enlarged section proximate said distal end, each of said enlarged sections having a clamping surface adapted to clamp the fluid carrying structure therebetween, said enlarged section including a central axis generally transverse to said clamping surface, said enlarged section having an exterior surface forming an arc extending more than 180 degrees around the central axis in a plane generally transverse to the central axis.
40. The clip of claim 39, wherein said exterior surface includes two opposed portions that form an arc of a circle in a plane generally transverse to the central axis.
41. The clip of claim 39, wherein said clip is formed of a single piece of wire and has a first free end terminating at said connector and a second free end terminating at one of said enlarged sections.
42. The clip of claim 39, wherein each of said enlarged sections have a clamping surface adapted to clamp the fluid carrying structure therebetween, said clamping surfaces having a maximum separation distance therebetween of 0.75 mm in an open and undeployed position.
43. The clip of claim 39, wherein said connector is adapted to bias said upper and lower support members toward one another into a closed position.
44. The clip of claim 39, wherein said connector includes a coil spring.

45. The clip of claim 39, wherein said connector is adapted to apply a force to said upper and lower support members to bias said upper and lower support members toward one another into a closed position, the force being greater than that needed to move said upper and lower support members into contact with one another.
46. The clip of claim 39, wherein said connector includes a pre-load force between said upper and lower support members of at least 100 grams of force.
47. The clip of claim 39, wherein said clip has a maximum dimension of 5 mm transverse to the mid-longitudinal axis.
48. The clip of claim 39, in combination with a clip applier for applying said clip to the fluid carrying structure.
49. The clip of claim 48, wherein said clip applier includes a magazine adapted to hold a plurality of clips.
50. The clip of claim 39, wherein the fluid carrying structure is a vessel, at least one of said upper and lower support members having a surface configured to enhance gripping of the vessel.